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INSTITUTIONAL AND TECHNOLOGICAL CHANGES IN TRANSPORT/LOGISTICS FIELD

Report by the UNCTAD secretariat

Executive summary

This report highlights the essential changes having taken place in the technological and institutional areas of the transport and logistics markets and their influence on the developments in this area. It describes the growth of outsourced logistics services and the respective roles of the different players involved in the providing and using of such services.

The influence of recent technological developments, such as greater use of multimodal transport, information technologies, EDI, and innovations in the field of containerization is outlined in Chapter I.

Chapter II deals with innovations in the legal and institutional spheres, focusing in particular on the reforms taking place in rail transport.

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Introduction

i. International trade is facilitated by efficient door-to-door logistics chains, simple trade formalities, procedures and operations. To remain competitive, buyers and sellers must reduce or, where possible, eliminate the various transaction costs that are included in the sale price of their goods. To do so it is essential to improve the quality of international transport and logistics at one national level, adapt commercial practices to international standards and remove all unnecessary trade barriers. The efficient operation of transport modes and interface facilities - resulting from reduced physical barriers and institutional interference and simplified legal regimes - is a prerequisite for effective improvement of international trade and transport operations.

ii. The lack of efficiency in such trade-related services as customs, transportation, banking and insurance, telecommunications or business information is a major impediment to the integration of developing countries in the world economy. As part of its technical cooperation and training activities UNCTAD organizes workshops and seminars in the field of international trade facilitation and transport. The objectives of UNCTAD's activities in these areas are not only to focus on improving the physical features (the "hardware") of the transport network, but - more importantly - on improving the performance of transport operators and auxiliary services, changing the legal environment and the commercial behaviour of users, and introducing innovative relations between public institutions and transport providers and users (the "software") of international trade and transport/logistics. This may be achieved by reducing or eliminating the lack of coordination among the many parties to a trade transaction and establishing appropriate *foraums* for transparent discussions between public and private sectors regarding the simplification of procedures, documentation and frequently excessive regulations which inhibit exports and increase the costs of imports.

iii. In this context a review of recent developments in the technological and legal environment is important in order to provide developing countries with practical information that will permit them to monitor the situation and take appropriate measures. Governments have an important role to play in providing the proper legal and institutional environment for fostering an effective national transport/logistics sector.

Chapter I

Main technological developments

Global logistics services

1. With the globalization of production, supply and distribution in many branches of the industry, the logistics market has continued to grow together with the trend to outsource logistics and concentrate on the core business. Competitive pressure forces the companies to look for savings in their supply and distribution chains and outsource the logistics function to third party service providers.[1] The modern logistics requirements are speed, frequency and, more importantly, reliability. The main task of logistics companies is a constant search ways to improve the management of their customers' global supply chains. Their basic vision is to operate supply chains on a global scale, supporting the manufacturer and its customers.

2. Some industries, such as automobile construction, high-technology manufacturing companies, computers, electrical appliances (TV, video, hi-fi, etc.), electrical household appliances and heavy industry, are the leaders in globalization of their production processes and are ready for the use of the third party logistics services that give them significant benefits from reducing inventories and improving lead time. These industries are global and include companies whose products command markets and are made on different continents. Also, they are dynamic industries characterized by rapid product innovation and complex logistics systems.

Types of services provided by logistics providing companies

3. The types of services most often entrusted to external contractors range from the management of customs procedures to the setting up of assembly and manufacturing plants. Most of them commonly include groupage, warehousing, information logistics services, transportation with a selection of carriers and negotiations of tariffs. Some of the value-added services in this area include management of warranty support programmes, return and repair services as well as global logistics services.

4. In principle, modern, ambitious logistics providing companies consider three distinctive sets of customers. The first, the largest group of companies, wants traditional transport and distribution services, such as sea, air and inland goods transportation, and the terms of price and quality of transport service are the most important issues for them.

5. A second group requires selected logistics services, such as merge-in-transport or pan-European distribution. There is a big value-added element in the demanded services which includes precisely defined high-quality management expectations.

6. The third group is looking for supply and distribution chain management services customized to their particular requirements, sometimes covering some of their risks. They would

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[1] Nevertheless, some companies are taking the opposite direction, outsourcing production and keeping logistics management in-house. The argument for this seems to be that "anyone can make a TV set, but only we know when we want it where".

like to buy specified capabilities for specified periods at specified costs, including maintenance. This type of client is increasingly concerned with overall process costs, rather than traditional pricing techniques based on transactions, such as twenty-foot equivalent unit (TEU) rates, which are favoured for standardized services.

7. Another important requirement from the customers' side is for one-stop logistics/ transportation shopping. They want a range of capabilities available to them from their principal providers, from basic international ocean service to door-to-door multimodal deliveries and/or logistics service under the control of a single provider (or at least obtained through a single contact or organization). Customers today are less interested in specifying the mode of transport than in the past. Rather, they are going to ask the service provider to help analyse the service-cost trade-offs of the different modes and provide the combination that is most cost-effective as part of an overall distribution pattern.

Potential market for outsourced logistics services

8. The total potential market for third party logistics services is estimated by different sources at $80 to 700 billion per annum, but what is certain is that this market is growing. Only a small percentage of the market is at present operated by the logistics companies. A major United States logistics company has identified the potential outsourcing logistics business from five selected industries. This is reproduced in Table 1.

Table 1

Logistics operations outsourcing market by industry
and potential five-year growth opportunities

Industry	**Logistics operations outsourcing market in 1997 ($ billion)**	**Annual growth rate 1997-2002 (per cent)**
Aerospace/Defence	3.7	11.6
High Tech Manufacturing	10.5	19.9
Medical supplier equipment	5.7	18.3
Pharmaceuticals	1.6	22.4
Retail	17.4	17.2
Total potential outsourcing opportunity	38.9	

Source: Containerization International, September 1998, p #67.

9. The annual growth in the use of third-party logistics services in the coming years is expected to be about 10 to 15 per cent in Europe and 20 to 30 per cent in the United States. Leading multimodal transport operators have become heavily involved in distribution and warehousing activities in developing countries and countries in transition, with the creation of their own logistics networks, providing complete transport services.

10. A dramatic growth in the logistics market has been noticed in some developing countries. For example, in India third party logistics business has been increasing at the rate of 30 per cent each year, while the rapidly developing economy of China has created the conditions for setting up a new comprehensive logistics, transportation and distribution venture jointly established by different national entities to provide a logistics network, with extensive use of information technology and logistics management for fully computerized warehouse management and cargo tracking systems and to offer integrated and cost-effective logistics services in various parts of the country.

11. However, in developing countries many barriers, ranging from poor infrastructure to cultural, linguistic and economic diversity, stand in the way of the development of this type of service, especially when it comes to transborder trade. Many of these barriers may be overcome with the proper use of information technology.

Freight forwarders and non-vessel operating common carriers

12. The role of freight forwarders and non-vessel operating multimodal transport operators (NVOMTOs) is vital in providing third-party logistics. Their success depends very much on the competitiveness and cost-effectiveness of the services provided by them. The leading players in this field profit from offering the use of information systems for automatization of documentation and cargo tracking, global geographical coverage and the services of first-class carriers. The successful future of a company will depend on its ability to satisfy cusomers' demands. It will need to know what the customers want and then provide a level of service that meets those requirements.

13. The growing volumes of ocean, inland and air freight traffic, handled by freight forwarders and NVOMTOs, along with the rising demand for global logistics services, enable the leading companies to become even more dominant in the market and may result in the demise of many smaller forwarding companies, especially in developing countries and countries in transition. But the quality of services provided always plays the major role in the competitive environment: superior service provides for greater profitability than chasing volumes at low prices. In this context, smaller companies may survive and even outperform bigger ones by supplying niche services, specializing in the areas of their knowledge and experience. They can react better and faster to the specific needs of their customers, sometimes going beyond usual forwarding activities to the domain of logistics providers.

Multimodal transport

14. Since the cost of transportation represents about 20 to 25 per cent[2] of the world's gross product, effective distribution and supply chains play a leading role in the modern competitive environment. The demands of the global economy and the logistics on which it depends for production and distribution have made intermodalism - the interconnectivity of and between modes of transport - an indispensable tool. Intermodal transportation, particularly that which is

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2 "Optimistic future predicted for sector", Lloyd's List, July 16, 1998, p.#3.

performed as multimodal transport, is a link between domestic and global production and the marketplaces and is the dominant factor in economic development and economic survival.

15. It is no longer enough to address port-to-port problems without taking into account total logistics chains. The global economy requires a reliable and frequent door-to-door transport product at reasonable cost. Particularly important for customers is the transparency of pricing and the partnership approach. In this respect, multimodal transport should become a prime shippers' option and a carriers' cost-cutter. Single billing and responsibility, along with decreased transit times, are decisive advantages for the former, while high handling efficiency and better equipment utilization are the advantages for the latter. Concerning concrete modes of transport, at a global scale in many cases such a product could be obtained from combining the advantages of sea and air transport.

16. Air transport has grown in terms of global revenue per tonne/kilometre by an annual average rate of 9.1 per cent since 1985. It accounted for 37 per cent of the value of global trade in 1996, and the extrapolation of the value parameter to the year 2005 brings it to over 50 per cent of global trade by value.[3] For example, European airports handled 7.5 million tonnes of cargo in 1997. This should be compared with the annual tonnage of containerized goods handled at Europe's largest container port, Rotterdam, which amounted to 5,340,000 TEUs, or 58.3 million tonnes in 1997.

17. One of the new forms of business in air cargo is the integrated airfreight companies that have been very successful in providing their customers with smaller groupage cargo services. These integrated carriers can offer very short transit times and highly effective administrative arrangements.

18. The inland distribution of goods must be designed to overcome environmental and congestion problems that will beset any new products that are not properly thought out. Developments in the European Union (EU) have lead to a situation in which 65 per cent of all cargo is moved by road transport, while rail use has fallen to 15 per cent. This trend is equally applicable to the developing and transition economies, where road transport in recent times has been growing, to the detriment of railways and inland waterways. Transport users have to adjust their thinking in order to maintain standards and cost effectiveness in transport in an era of increasing road costs and congestion. Supply and distribution chains should be adjusted to incorporate more environmentally friendly rail and inland water transport. Unlike road-based transportation, the rail networks and inland waterways often have spare capacity, and by investing in developing this capacity, those modes of transport should be able to absorb additional volumes.

Use of information technology

19. Critical to effective global logistics services is the use of information technology. Real-time information is not only required by shippers to optimize their inventory-in-motion

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[3] "Air cargo, the fastest growing mode of transport in a global economy", Lloyd, Antwerp, March 11, 1998, p.#5.

management, but also by transport operators and service providers to increase their planning capacity and enhance their services.

20. The Internet and electronic data interchange (EDI) play an increasingly large role in transport and logistics services as the management of information becomes as important as the management of the shipment itself. Full tracking of cargo, flexibility and quick response can be obtained only with the full use the of advantages of this technology. Transport operators who do not want to end up as mere suppliers of a commodity transport service product must invest in the necessary information systems. The Internet, and particularly the World Wide Web facility, has been found to be an effective means for accelerating the movement of trade documentation and for direct commercial applications.

21. The use of the Internet allows potential carriers to register and submit bids for spot business and annual contracts. It reduces lead time to quote, enhances customer services, and improves the communication links between all parties. A widely used area of the Internet in the transport and logistics field is the trading of new and secondhand containers and other equipment. Some information technology products based on the Internet permit the monitoring of supply chain events and proactively produce relevant alerts on business irregularities relating to physical and administrative activities. These may include activities involved in the air, sea and land movement of goods, freight forwarding, customs, warehousing and distribution, and manufacturing and quality assessment.

22. The current market environment is often characterized by complexity, high costs, inadequate customer services, lost opportunities and sub-optimization. There is a distinct need amongst all parties in the trade chain to fully automate the processing and exchange of documentation. In order to provide globally guaranteed and secure delivery of trade documentation in electronic form, many conditions should be met, in particular global operational capability, a secure legal framework, harmonized standards, comprehensive data security and the potential for value-added services.

23. One of the most advanced systems in this area carriers, freight forwarders and transport insurance companies which was developed through the joint efforts of banks, is the Bolero system - an ambitious venture aimed at making electronic commerce a reality in international trade. Its mission is to facilitate cross-border and cross-industry operation of electronic trade through a safe legal environment and a common technology platform. The companies may use the system service to gain a competitive edge without making major infrastructure investment. This will be achieved through improved staff productivity, better access to partners' information and enhanced accuracy in administrative information processing. The transport service providing companies might also be able to extend the range of their services to customers wishing to outsource their logistics.

24. Another important project in the field of information technology is the MARTRANS project developed within the framework of pilot projects launched by the EU with a view to shaping the information society. The initial goals of the system were to set up a logistics information network for real-time information on cargo and vessels by interconnecting existing EDI-Port Community Systems and implementing new EDI systems in non-automated ports. But in accordance with the shift in the EU transport policy towards integrated transport and the

requirements of the transport users of integrated logistics services, the focus of the project was shifted to intermodal transport. This should allow operators and service providers to optimize process and provide transport users with better supply chain management.

Use of non-ISO standard containers

25. Due to the superior quality of transportation and the corresponding cost savings, the share of transport in containers in the general cargo market has continuously increased, its volume in 1997 was more then 150 million TEUs. The container is the most important element in the modern transport and logistics chain; no new transport technology is envisaged to replace container transport in the foreseeable future.

26. By the second half of 1997, the global fleet of maritime containers totalled 10,982,586 TEUs, or 7,611,630 real units. ISO standard dimensions containers continue to be the leading and prevailing container types in total container trade, their share in the total container population continues to predominate, as can be seen from Table 2. It was generally recognized that the stability of international standards on container dimensions is of paramount importance for the development of modern transport and logistics chains, especially where a sea leg is involved. The stable character and the worldwide application of international standards of container dimensions and rating have permitted operators and manufacturers throughout the world to have confidence in long-term developments and investments in the sector. UNCTAD's role is in maintaining the stability of international container standards (which is especially important in the case of developing countries) is well known.

27. However, specific requirements of certain transport and logistics chains have led to the introduction on the market of loading units that provide more cargo space than is possible with the present ISO standards. Since the early 1990s, ISO has been working on the development of ISO series 2 containers, coming out with draft standards for second-generation containers. The issue of this new generation of standards is a highly contentious creating divisions between developing and developed countries (and even between some of the developed countries themselves). The unilateral introduction of oversized containers will put the developing countries at a disadvantage, as in most such countries ISO series 1 containers have been the basis for relatively recent large-scale investments in infrastructure, rolling stock and handling equipment.

Table 2

Container population profile in terms of ISO dimensions share, in TEUs

Type of container	1994	1997
ISO-dimension (20- and 40-foot)	7,984,135	10,567,920
non-ISO dimension (other length)	355,297	414,666
Total	8,339,432	10,982,586

Source: Containerisation International Censuses for 1994 and 1997.

28. Without an agreement on the issue of a new international standard, the introduction of non-ISO containers for international and domestic operations continues. The latest Containerisation International census identified over 60 separate categories of regional/domestic containers which numbered 414,666 TEUs (calculated on an equivalent length basis), or 243,518 real units. These regional/domestic containers were grouped as follows:

- North-American domestic containers, comprising units used in intermodal rail and road service. The majority are 48 feet long, although the number of 53 feet long containers is growing. The external width of these containers is 8 feet 6 inches;

- European (and Australian and South African) pallet-wide containers, comprising 20-foot, 30-foot and 40-foot units of non-cellular construction. External width is 2.5 m;

- European-style swapbody containers, comprising the majority of units built to withstand the tests prescribed by ISO standards. Most are from 7 to 8 m or 13.6 metres long. External width is 2.5 m.

29. Such developments in containerisation technology should be carefully monitored in order to prevent developing countries from being bypassed in their efforts aimed at integration into the world economies.

Changing pattern of maritime trade

30. Maritime transport plays a leading role in international trade. Major container carriers and specialized shipping lines are seeking to strengthen their control over the integral logistics chain to ensure the cost efficiency of their operations. At the same time, under the new conditions created by the constant growth of container trade and new legislation measures (United States Ocean Shipping Reform Act, European Union judgement on TACA), alliances between shippers and carriers and between the carriers and other logistics services providers are strengthening.

Table 3

Recent changes in medium/large containership fleet

	1000-24999 TEUs		2500 TEU +		Total	
	Number of vessels	Total TEU capacity	Number of vessels	Total TEU capacity	Number of vessels	Total TEU capacity
Fleet as of 31.12.97	966	1,472,900	544	1,922,400	1,510	3,395,300
Additions to 31.08.98	76	130,200	45	195,900	121	326,100
Deletions to 31.08.98	14	20,000	6	17,800	20	37,800
Net change to 31.08.98	+62	+110,200	+39	178,100	+101	+288,300
Fleet as at 31.08.98	1,028	1,583,200	583	2,100,500	1,611	3,683,700
Change from 31.12.97 (per cent)	+6.4	+7.5	+7.5	+9.3	+6.7	+8.5

Source: LSE/Boxfile Containership Database.

Note: All figures are rounded, and totals therefore may not tally.

31. The ports are striving to accommodate demands from container carriers who tend to shorten the transit time of containers by offering the most direct routes for larger container ships and reducing the number of ports of call, while at the same time covering the different subregions through a network of feeder lines serviced by smaller vessels. Table 3 illustrates the recent changes in the world containership fleet and Table 4 shows the distribution of the world containership fleet by groups of countries.

Table 4

Distribution of the world fleet and TEU capacity of fully cellular containerships by groups of countries, in 1995, 1996 and 1997
(end-of-year figures)

Flags of registration by groups of countries	Number of ships			TEU capacity and percentage shares [a]		
	1995	1996	1997	1995	1996	1997
World total	1 771	1 954	2 204	2 720 092 *100.0*	3 089 682 *100.0*	3 632 070 *100.0*
Developed market-economy countries	441	592	675	827 618 *30.4*	1 170 879 *37.9*	1 398 781 *38.5*
Major open-registry countries	609	683	800	898 270 *33.0*	1 066 261 *34.5*	1 315 130 *36.2*
Total, developed market-economy and major open-registry countries	1 050	1 275	1 475	1 725 888 *63.5*	2 237 140 *72.4*	2 713 911 *74.7*
Countries of Central and Eastern Europe (including the former USSR)	50	45	35	29 502 *1.1*	27 120 *0.9*	23 276 *0.6*
Socialist countries of Asia	67	98	99	95 173 *3.5*	95 882 *3.1*	96 739 *2.7*
Developing countries	384	441	504	453 478 *16.7*	549 555 *17.8*	628 999 *17.3*
***of which* in:**						
Africa	5	5	8	4 779 *0.2*	4 779 *0.2*	9 117 *0.3*
America	109	126	138	86 566 *3.2*	108 552 *3.5*	119 299 *3.3*
Asia	263	305	353	357 282 *13.1*	431 669 *14.0*	496 028 *13.7*
Europe	4	5	5	3 711 *0.1*	4 555 *0.1*	4 555 *0.1*
Oceania	3	..	-	1 140 *0.0*	.. ..	.. ..
Other, unallocated	200	95	91	416 051 *15.3*	179 985 *5.8*	169 145 *4.7*

Source: Review of Maritime transport 1998. Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Maritime Information Services (London).

[a] Percentage shares are shown in italics.

Chapter II

Legal and institutional developments

Legal regulations

32. In the field of legal regulation of multimodal transport services, new administrative regulations for multimodal transport of international containers were introduced in China as from 1 October 1997. The conditions for multimodal transport now include a new licensing system, a new liability regime and a prohibition against foreign operators working outside of joint ventures with Chinese partners. The tighter licensing system means, in particular, that foreign operators have to set up a company in the country and comply with a number of fiscal and business criteria. Licenses will be limited to a three-year period, after which operators will have to apply for a renewal document. The new rules cover all container moves between any inland point in China and any port/point overseas, where part of the move involves the use of road, rail and/or barge/coastal ship. As a further step towards to tightening control over foreign transport and logistics services providers in China, a new regulation was introduced prescribing the mandatory use of computerization in their activities.

33. The European Commission's Directive 91/40 identified intermodal traffic as the most suitable means for liberalization of rail transport, introducing the open access concept for companies outside the railway administrations to operate their own trains on public tracks. While until 1993, Intercontainer-Interfrigo (ICF) was the only cross-border rail service provider for container traffic, by 1997 there were already no less than a dozen operators running their own shuttle trains on the European railways. The private sector is deeply involved in operating shuttle trains through joint ventures and partnership between ports, shipping lines and state railways. The operator usually leases the wagons and negotiates a price for having the train moved by the state railways' locomotives and crews in keeping with an agreed timetable.

34. One of the main results of deregulation in the field of European rail transport has been the creation of the concept of freightways - established routes putting through routes and rates. The main players in this field are major intermodal companies engaged in deep-sea container traffic through the European ports. However, maritime containers form only a small portion of the total tonnage which needs to be switched from road to rail transport for a sustainable transport policy to be realized. Freightways were also intended to, and are currently carrying a significant numbers of domestic containers and swap-bodies.

35. In the United States, a concrete sign of recognition of intermodal transport from the legal point of view was the Intermodal Surface Transport Efficiency Act of December 1991. Congress recognized the importance of the intermodal approach to the country's transportation system and established the National Commission on Intermodal Transportation to make a complete investigation and study of intermodal transportation in the United States. The law directed the Commission to recommend ways to speed national conversion to an efficient intermodal transportation system. In its final report the Commission issued three groups of recommendations addressing policy measures, investment issues and the restructuring of government institutions to improve intermodal transportation.

36. The United States Ocean Shipping Reform Act of 1998, approved by the House of Representatives, is expected to be implemented in May 1999. The legislation will cover the complete movement of goods from their origin abroad to their final destination in the United States and vice-versa, so it will apply to any carriage that includes a sea segment, where the place of receipt or delivery of goods, or the port of loading or discharge of the goods, is, or is intended to be, in the United States. This legislation is a result of many compromises reached between the interested parties during the drafting and discussion stages. According to the opinions expressed in many instances, the entry of the act into force will contribute to the alliances between shippers and transport operators. The companies that, under the new act, have been reclassified as transportation intermediaries, but i.e. NVOCCs and freight forwarders are not, however, included in this compromise and may be placed in a difficult position, in competition with other providers of transport services. While the act will enable shippers to negotiate confidential rate agreements with ocean carriers. it may weaken the position of NVOCCs and freight forwarders, especially smaller ones, who may risk becoming irrelevant in handling the traffic of large-volume shippers.

Rail transport reforms

37. In their efforts to make railway transport more efficient, the governments are taking steps to reform their rail networks and to involve the private sector more actively in the operation of rail transport. While EU Directive 91/40 required only that infrastructure accounts should be separated from those of operations, it also required that socially necessary passenger services, intercity passenger services and freight services should be treated separately in accounting in order to show that state subsidies were limited solely to social passenger services. The directive clearly underlined the institutional separation of infrastructure from operations because infrastructure is seen as a state responsibility, whereas operations (except for social services) are considered a commercial activity.

38. Not everyone agrees with the separation of the infrastructure and operations aspects of a railway's activity. Many experts disagree with this separation, considering that it artificially separates the natural wheel/rail synergy, the technical fundamentals of railway. It may raise coordination and contention issues across the whole spectrum such as timetabling, maintenance coordination and safety responsibility. The European railway trade unions voiced strong opposition to the separation of infrastructure and operations and to giving third parties' operators to the networks. Apparently, a thorough analysis is required in each individual case in order to find a solution that takes into account the specific situation of a given railway or a system.

39. Privatization is one of the steps most often used in relation to the rail networks of developing countries, where the condition of the railways often leaves much to be desired.

40. There are few examples in which railways have been truly privatized, with total private ownership and operation of a network, and all of them relate to the developed market countries. These examples are New Zealand Railways, Canadian National, East Japan Railways, Conrail, and the infrastructure and freight services of British Rail. Instead, a type of concession has usually been preferred by the Governments which allows them to retain ultimate control over the infrastructure while at the same time allowing the private sector to carry out the operational

functions and compete for customers in the market. That was the case of several Latin American countries where concessioning began in the early 1990s.

41. In Argentina, by mid-1990 the Government had agreed on restructuring railway transport into several separate freight and commuter rail networks. Six freight packages were created for concessioning on 30-year terms, with an optional 10-year extension. The concessionnaires have exclusive use of the tracks, although they must grant excess to passenger operations in return for a compensatory track use fee. In Brazil, the Government used the same approach, concessioning six exclusive regional systems as a result of the geographic situation, gauge differences and traffic characteristics of each line. In Chile, in order to continue the passenger services, it was decided to concession only the freight services, while keeping the infrastructure and passenger services in public hands. In Mexico, the railways were concessioned in a way that maximized the opportunity for crossborder traffic since the country belongs to a free-trade area (NAFTA). The railways have been also concessioning in Bolivia, Colombia and Guatemala, and consessions are planned in Peru and Uruguay.

42. In Africa, the Abidjan-Ouagadougou railway was privatized under a single operating concession for 15 years term to a consortium of private sector shareholders. The consortium provides both freight and passenger services and sets its own tariffs for both. A number of other African concessioning efforts are under way or being considered, in particular in Malawi, Mozambique, Zambia, Madagascar, Gabon, Cameroon and some other countries.

43. In the examples above, rail transport does not play the leading role in the country's transport system. Some railways were on the verge of complete closure. In some developing countries the condition of the railways before the concession required reconstruction, rehabilitation and significant investment from the public authorities to make them attractive to potential buyers. Traffic on many railways after being put under concession was concentrated on some specific traffic, with unprofitable branches being closed, which sometimes lead to the interruption of socially significant services. Privatization does not always result in improved services. In this context there are many complaints, particularly with regard to the shutdown and deterioration of socially important services as a result of economy measures taken in the course of privatization.

44. In the context of rail transport reform, the experience of the Russian railways deserves special consideration. For geographical, social and political reasons, rail transport in the Russian Federation is the basic mode of transportation and is therefore vital to the survival of the State. In contrast with other industries in that country, where hasty privatization has had disastrous consequences, the railways remain a state property, while at the same time permitting the newly established private companies to use their own rolling stock and enjoy equal access to rail infrastructure. Currently, about 20 per cent of the total goods wagon fleet are owned by private companies. This system fosters competition among different operators, improves customer service, permits better utilization of rolling stock and generates supplementary revenue. At the same time, the Russian railways have succeed in maintaining high safety standards and to be profitable under conditions of reduced traffic volumes and the absence of state subsidies.